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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/709,510	05/11/2004	Donald R. STEVENSON	47399-0034	3509

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EXAMINER	
THEXTON, MATTHEW	
ART UNIT	**PAPER NUMBER**
1714	

DATE MAILED: 12/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/709,510	STEVENSON ET AL	
	Examiner	Art Unit	
	Matthew A. Thexton	1714	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) *1-9 and 15* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *10-14 and 16-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *1-20* are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *11 May 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *three sheets*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

The IDS filed 2004 July 9 and 13 have been considered.

Applicant is requested to state the pertinence of citation Laura (US 5880190A).

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims 10-14 and 16-20, drawn to formulations comprising halogenated resin, at least two phosphite esters, and a zinc additive, classified in class 524, subclass various depending on the specific phosphite and the specific zinc source.

II. Claims 1-9 and 15, drawn to formulations comprising at least two phosphite esters and a zinc additive, classified in class 252, subclass 400.23 or 400.24 depending on the specific phosphite.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as mutually exclusive species in an intermediate-final product relationship. Distinctness is proven for claims in this relationship if the intermediate product is useful to make other than the final product (MPEP § 806.04(b), 3rd paragraph), and the species are patentably distinct (MPEP § 806.04(h)). In the instant case, the intermediate product is deemed to be useful as additive formulation for polyolefin, as suggested by McCullough, Jr. (US 6022946) and the inventions are deemed patentably distinct since there is nothing on this record to show them to be

obvious variants. Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions anticipated by the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

Because these inventions are distinct for the reasons given above and the search required for Group II is not required for Group I, restriction for examination purposes as indicated is proper.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

Claims 1-20 are generic to a plurality of disclosed patentably distinct species comprising the various phosphite ester combinations encompassed therein, as categorized in paragraphs 0037-0039 of the specification. Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for each of the at least two phosphite esters, even though this requirement is traversed.

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

During a telephone conversation with Mr. Louis F. Wagner, at 330-258-6453, on 2005 December 20, a provisional election was made with traverse to prosecute the invention of Group I, claims 10-14 and 16-20, and the specie election of the combination of specie DOVERPHOS ® 613 (disclosed as #3 on page 18, and falling with the genera indicated as "(iv)" in claim 1 and "IV" in claim 15) with specie DOVERPHOS ® 9EH (disclosed as #15 on page 19, and falling with the genera indicated as "(iii)" in claim 1 and "(III)" in claim 15), claims 10-14 and 16-20 are all generic to the elected specie combination. Affirmation of this election must be made by applicant in replying to this Office action.

Claims 1-9 and 15 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim

remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Drawings

The drawings received as originally filed are acceptable.

Specification

The disclosure is objected to because of the following informalities: The data for the parent of this Continuation-in-Part should be updated to show the US patent number.

Appropriate correction is required.

Claims Version

The claims as amended in preliminary amendment filed 2004 November 26 have been examined.

Claims Analysis

Claims 1-9 and 15 are withdrawn and are described only to the extent necessary to analyze the elected claims 10-14 and 16-20.

Claim 1 is directed to mixtures for use as at least partial replacement of mixed metal, alkali metal, or tin based stabilizers for use in vinyl resins comprising:

- (a) at least two phosphite esters selected from the group consisting of: (i) through (vii) (which are structurally defined groups); and
- (b) a zinc additive;

wherein the molar ratio of P/Zn is about 80:1 to 4:1; and

wherein the mixture is essentially free of calcium, cadmium, barium and tin.

Claim 10 depends from claim 1 and further requires the presence of a halogenated resin. Claims 11-14 depend directly or indirectly on claim 10 and further specify the amount of zinc in the resin, or that the resin is flexible polyvinyl chloride.

Independent claim 15 is directed to mixtures for use as at least partial replacement of mixed metal or tin based stabilizers for use in resins comprising:

- (a) a first phosphite ester defined by formula (IV);
- (b) at least one second phosphite ester selected from the group consisting of (i) through (v) (which are structurally defined groups); and
- (c) a zinc additive;

wherein the molar ratio of P/Zn is about 80:1 to 4:1; and

wherein the mixture is essentially free of calcium, cadmium, barium and tin.

Claim 16 depends from claim 15 and further requires the presence of polyvinyl chloride. Claims 17-19 depend directly or indirectly on claim 16 and further specify the amount of zinc in the polyvinyl chloride. Claim 20 depends from claim 15 and further requires the presence of flexible polyvinyl chloride.

Claim Objections

Claims 8 and 9 are objected to because of the following informalities: portions of formulas (V) and (XIV) are cut off on the right hand margin. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 20 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 20 recites the limitation "said polyvinyl chloride" in line 1. There is insufficient antecedent basis for this limitation in the claim; said limitation is introduced to claim 16, but claim 20 depends from claim 15.

Claims 10-14 and 16- 20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The phrase "essentially free of calcium, cadmium, barium and tin" is undefined, rendering the claim indefinite.

35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim Rejections

Claims 10-14 and 16-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nosu et al. (JP 3-157437A, USPTO obtained translation).

The present claims are broadly discussed hereinabove in the section ***Claims Analysis*** which is incorporated by reference.

The reference '437 (translation) discloses halogen containing resin such as vinyl chloride polymer (penultimate line of page 7) stabilized by 0.01-5 phr zinc compound such as zinc stearate (last two lines of page 10) in combination with 0.01-5 phr

phosphite compounds such as DOVERPHOS 613 (third and fourth to last lines of page 14) or DOVERPHOS 7 or 8 (lines 11-12 of page 14) and impliedly free of Ca, Cd, Pb, Ba, and Sn (claims, and lines 8-15 of page 4). Given the molecular weights of the claimed phosphite esters (assuming 1:1 mixture of 613:9EH) and zinc stearate, converting from P-compound/Zinc-compound weight ratio to P/Zn mole ratio involves multiplying by approximately 1.5. Since the range of amounts by weight in '437 is 0.01-5 for each noted component, it is clear that the mole ratio of Applicant's claims (anywhere from 80:1 to 4:1) encompasses the weight suggestions of '437. Further, a dose of 0.01 phr is equal to 100 ppm, thus it is clear that the limitations of zinc dosage in claims 11-14 and 17-19 encompass those of '437. It would have been obvious to one of ordinary skill in the art at the time of the invention to have employed mixtures of phosphite esters given the suggestion that they are effective for the same use. Applicant's elected specie DOVERPHOS 9EH is a structurally obvious variant of the listed species in '437, as well as being encompassed by the broad disclosure of formula (3) (page 13). By following the suggestions of '437, the presently claimed subject matter is arrived at. The limitation that the resin be "flexible" in claims 14 and 20 is of no moment since it is a relative term not defined by the present specification and because '437 discloses vinyl chloride polymer which is inherently flexible. Applicant's examples have been considered but they fail to provide sufficient data to conclude that a greater than additive effect is in evidence.

Claims 10-14 and 16-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Valdiserri (US 4614756) alone or in view of York (US 4116926).

The present claims are broadly discussed hereinabove in the section ***Claims Analysis*** which is incorporated by reference.

Reference '756 discloses PVC stabilized with zinc salt of fatty acid, conventional phosphite ester or esters (column 2, lines 27-28), and reduced amounts of dioctyl tin mercaptide (column 1, lines 49-55). Examples 18 and 19 of '756 employ about 14.7 and 29.4 molar ratio of P/Zn respectively based on a bisphenol A-alkyl phosphite having a molecular weight of 1028 for each 'monomer' of the oligomer '439' (i.e., assuming the '439' has four C12 alkyl groups) and having two Phosphorus atoms, and zinc stearate having a molecular weight of 631.4 with one zinc atom. The reference employs stabilizer '439' bisphenol A-alkyl phosphite oligomer. While not identical to Applicant's DOVERPHOS ® 613 or 675, it is suggestive of the mere monomer and would have been an obvious variant to one of ordinary skill in the art at the time of the invention since they are chemically analogous and the monomeric forms were commercially available, as well as being encompassed by the broad disclosure (column 2, lines 10-31). Examples 1-3 of '756 employ diphenyl dodecylphosphite, a structural analog to Applicant's elected specie 9EH. Applicant's elected specie DOVERPHOS 9EH is a structurally obvious variant of the listed species in '756, as well as being encompassed by the broad disclosure (column 2, lines 10-31). It would have been obvious to one of ordinary skill in the art at the time of the invention to have employed mixtures of

phosphite esters given the suggestion that they are effective for the same use and the suggestion to employ mixtures (column 2, lines 27-28).

The tin containing additive required by the reference disclosure is not excluded by Applicant's limitation of "essentially free of...tin" in the claims because the meaning of this phrase is unstated and because the claims and specification otherwise admit that the explicit additive combinations are only "at least a partial replacement for ... tin-based stabilizer additives" and because claims 10-14 and 16-20 are compositions "comprising" the additive of claims 1 or 15 plus resin plus anything and there is no evidence that premixing the additives of claim 1 and 15 and separately adding the tin-based additive to the PVC would result in a product (claims 10-14 and 16-20) that could be distinguished from a product formed from any other order or combinations of addition to the PVC.

The reference disclosure of example 16-18 demonstrates that increasing amounts of zinc stearate up to the test limit provides increasing stabilization. Further, comparative examples C-G demonstrate that zinc is preferred to calcium or magnesium.

The Valdiserri reference discusses the tin stabilizers at column 1, lines 12-47. It is understood that their relative expense is a motivating factor in identifying and employing lower cost materials or enhancers. Accordingly, it would have been obvious to one of ordinary skill in the art at the time of the invention to have omitted the tin stabilizers in the additive formulations so as to permit the commercial user the option to capitalize on any identified lower cost materials or enhancers up to the time of addition to PVC.

The limitation that the resin be "flexible" in claims 14 and 20 is of no moment since it is a relative term not defined by the present specification and because '437 discloses vinyl chloride polymer which is inherently flexible. Applicant's examples have been considered but they fail to provide sufficient data to conclude that a greater than additive effect is in evidence.

'926 discloses two classes of phosphite esters known to be stabilizers for vinyl chloride polymers. The polyalkyl bis-phenol-A polyphosphates may contain from 1-5 bis-phenol-A groups, indicating that monomers and oligomers are to be considered obvious structural variants. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify '756 to employ the phosphites of '926 because of their chemical similarity and the suggestion in '926 that they are equivalents.

Citation of Pertinent Prior Art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Leistner et al. (Canada 740042) discloses various phosphite esters, including DOVERPHOS 9EH.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew A. Thexton whose telephone number is 571-272-1125. The examiner can normally be reached on Tuesday-Friday, 9:30 to 7.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasudevan S. Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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